b) hybridizing the random oligonucleotides of step a) with a nucleic acid-containing template of biological or synthetic origin under hybridization conditions that enable the formation of duplexes and using blockers to avoid hybridization of said flanking segments;

c) eliminating non-specific duplexes formed in step b) using conditions that minimize or abrogate mismatches;

d) separating the hybridized oligonucleotides from the duplexes obtained in step c); and

e) amplifying the oligonucleotides obtained in step d).

2. A process as defined in claim 1, further comprising the step of f) subtracting between two different oligonucleotide libraries (OL1 and OL2) which contain similar sequence motifs.

3. A process as defined in claim 2, wherein said subtracting in step f) consists in:

a) Generating single stranded versions of OL1 and OL2;

b) annealing the OL1 strands with an excess of OL2 strands, under hybridization conditions;

c) partitioning double stranded hybrids (OL1:OL2) and single stranded OL2 from single stranded OL1;

d) amplifying the single stranded OL1 obtained from step c); and

e) repeating steps a) to d) to obtain OL1 oligonucleotides with reduced affinity for OL2.

4. A process as defined in any one of claims 1 to 3, wherein said central segment comprises 10-40 bases and each one of said flanking segments comprises 10-40 bases.

5. A process as defined in claim 4, wherein said central segment comprises 20 bases and each one of said flanking segments comprises 20 bases.

6. A process as defined in any one of claims 1 to 3, wherein the template of step b) contains at least one of genomic or synthetic DNA or RNA, or cDNA.

7. A process as defined in claim 3, wherein said partitioning is carried out using streptavidin and biotin.

8. A library of oligonucleotides produced by the process of any one of claims 1 to 7.

9. Use of a library of oligonucleotides produced by the process of any one of claims 1 to 7 in a diagnostic kit.

10. Use of a library of oligonucleotides produced by the process of any one of claims 1 to 7 to inhibit gene function.

11. A method of diagnosis comprising use of a library of oligonucleotides produced by the process of any one of claims 1 to 7.

12. Use of a library of oligonucleotides produced by the process of any one of claims 1 to 7 wherein said oligonucleotides are bound to a solid support.

13. A use as defined in claim 12, wherein the solid support is at least one of a membrane, glass slide, coated glass slide, printed arrays, microspheres or chromatographic media.

14. Use of a library of oligonucleotides produced by the process of any one of claims 1 to 7, wherein said oligonucleotides are hybridized to nucleic acid arrays.

It is believed that no fees are due in connection with this filing of the clean version of the amended claims. However, if any fees are due, the Assistant Commissioner is hereby authorized to deduct said fees from Conley, Rose & Tayon Deposit Account No. 50-1505/5593-00300/EBM.

Respectfully submitted,

Mark R. DeLuca
Reg. No. 44,649

Patent Agent for Applicant

CONLEY, ROSE & TAYON, P.C.
P.O. BOX 398
AUSTIN, TX 78767-0398
(512) 703-1423 (voice)
(512) 703-1250 (facsimile)

Date: July 6, 2001